

### Abstract

Processes, etchants, and apparatus useful for etching an insulating oxide layer of a substrate without damaging underlying nitride features or field oxide regions. The processes exhibit good selectivity to both nitrides and field oxides. Integrated circuits produced utilizing etching processes of the present invention are much less likely to be defective due to photoresist mask misalignment. Etchants used in processes of the present invention comprise a carrier gas, one or more  $C_{2+}F$  gases,  $CH_2F_2$ , and a gas selected from the group consisting of  $CHF_3$ ,  $CF_4$ , and mixtures thereof. The processes can be performed at power levels lower than what is currently utilized in the prior art.

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